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<u>ICT in an Organisation</u>

<u>Introduction</u>

In this piece of coursework I will be looking at how Tesco uses ICT to help the company. The reason Tesco is the organisation that has been chosen is because the amount of money that is spent in the company is so high that their technology will be of a very high standard and Tesco is the largest food retailer in the country. For every £9 that is spent in an organisation, £1 is spent in Tesco. The Tesco in Peterborough has the largest number of checkout stations in the country and is the first purpose built Tesco `Extra` Store in the country.

I will be looking at how Tesco uses ICT to help the company to be so successful and I have word documents and a PowerPoint to help me with this piece of coursework with background information on about Tesco, and what software and hardware it uses. This will help me when I come to explain the technology that is used as part of this coursework because I have detailed explanations as to what they use. I also have two books that I can use to help me with this coursework:

- Applied ICT
- Applied ICT for GCSE

These books and other documents provide some background information to Tesco and the project that I am doing, this means that I will be able to explain everything fully when I come to do it .

Tesco has defined its purpose **'To create value for the customer to earn lifetime loyalty'** in order to gain more customers; keep them and existing ones shopping at their stores. In order to keep their customers, Tesco believe in Value, Quality and Service which is their value statement. In the process of this, the company would become popular and well known.

In this piece of coursework I will be attempting to see how far ICT helps Tesco to achieve its purpose.

<u>ICT in Tesco Stores</u>

There are four main areas of the company:

- Sales
- Purchasing
- Finance
- Operations

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Sales

Involving the sale or distribution of the goods needed by Tesco.

Sales in Tesco

People can shop two ways in Tesco. Either by walking around the shop and getting what they need they can go online and order it and then have it delivered to them. This was of shopping is a lot less time consuming for the customer and this makes Tesco very popular because they offer a home delivery service when you do online shopping. This means they keep customers loyal to them because they offer a good service, and by ordering online, Tesco can still monitor what the customer wants and improve on it.

Purchasing

Involving the purchasing of goods needed by Tesco.

Ordering new stock is one of the tasks of the Purchasing Department. The computer system will hold details of the suppliers of each item they stock and need to order from. Tesco will need to order other items besides raw materials that they sell; they will also need to buy things like office supplies to help keep the company running. In order to purchase some stock that may have sold out in a shop, a clerk in the Purchasing Department will enter the details of a purchase order and send it to the supplier; they will then receive the goods and an invoice that will be passed onto the Finance Department.

Purchasing in Tesco

Tesco's modern technology allows them to have a self-order system. This is an automatic re-ordering system for when goods get too low on the shop floor. The laser scanners and barcodes are used to identify all products individually that are sold. The barcodes that are scanned when an item is bought are recorded and scanned into a computer system and then when this computer system recognises that that particular barcode is running low, they locate what the product is and then send off for another order of the product. Instead of having to do it manually, it is computerised and uses ICT for the job. This means that because people aren't needed to be employed, Tesco can spend that extra money on improving their computer system even more. By purchasing supplies this way, Tesco are saving time and money that can be used in much better ways within the company. This benefits the customer because this way the shops are always in stock.

Finance

Managing the flow of money in and out of Tesco. For the people that work in the finance department, their jobs include:

- Credit control
- Supplier payments
- Budgeting and forecasting
- Payroll

<u>Finance in Tesco</u>

Tesco operates using cash and credit sales. This means you can either use cash at their stores or a credit or debit card. This benefits the people that shop at Tesco and makes Tesco even more popular. Buying using your credit or debit card is quick and easy. Also, you can get cash back from doing so. Most people now prefer and choose this way of payment. Tesco's has improved its way of paying by card because now all you have to do is enter your pin which is quicker than having to sign.

<u>Operations</u>

Carrying out the main business of Tesco

<u>Tesco Operations</u>

These include working on the tills, working on the shop floor and customer services.

Without the use of ICT Tesco wouldn't be as popular and people wouldn't shop there because it would be manually run and the procedure of buying goods would be too time consuming and people would choose to shop else where. Combined with ICT, Tesco's system is fast, easy to use and easy to understand, this makes it a modern and widely known shop.

ICT is used to:

- Communicate effectively internally and with suppliers and customers
- Manage and control production processes
- Manage finance, including payroll, budgeting, processing transactions and reporting
- Manage stock control
- Market products and services efficiently.

These points combined with sales, purchasing, finance and operations makes Tesco the success it is today.

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Communication

Tesco sees communication with its customers as a big priority, it proves that they care about what their customers think and want. Via the Tesco Club cards they can communicate with their customers and send them rewards for shopping at their store. Using their technology, they hold all the customers details like name and address on a database if they have signed up to a Clubcard and can then send them vouchers and special offer sheets through the post which maintains their customers interest to shopping with their stores. This benefits Tesco by keeping their existing customers and gaining new ones via the loyalty card scheme which keeps them their massive income.

Loyalty Card

The Tesco's loyalty card is used for marketing. Loyalty cards or Clubcards are used by Tesco to enhance their customer's loyalty to the store. These loyalty cards hold the customers name, address and most importantly their purchase preferences. Because of these cards, Tesco can see what is being bought by their customers, every time they are swiped, what is being bought is recorded by Tesco and on the loyalty card so that Tesco can see what customers want. Tesco give vouchers to those that have a loyalty card so that they benefit from having one and not just Tesco. These vouchers keep customers coming back to the store which means they are spending money at the store and Tesco's core program 'To create value for the customer to earn lifetime loyalty' is successful because of this policy, they are benefiting and so are the customers, this means customers are going to keep returning to Tesco because they are getting money off their purchases because of the rewards they are getting from having a benefit card so Tesco can improve their stores by giving the customer exactly what they want. Tesco records all transactions using their loyalty cards. This information is used to compile a database of the customer base using that store. From this Tesco build up a profile of their customers using a particular store. The effect of this is that the stocking of Tesco stores varies across the country depending upon the profile of the customer base

Information

Tesco use information by sending information to customers via posters and leaflets and announcements. This makes them very popular because people know when there is a special offer on and this maintains the customers interest because this will make it cheaper to shop at Tesco because of the special offers that they are advertising and if you have a loyalty card then you may have vouchers for the same offer making it even cheaper. This then benefits Tesco because

they are getting money from the customers and keeping their interest in

The company so they are maintaining their popularity because people still want to shop there because it is good quality food for a low or discounted price.

Laser Scanners

Tesco stores are all linked to two huge central computers at Tesco Head Office at Cheshunt. These machines are linked so that as one is filled up so the other starts. While one is in operation the other is prepared to take over when the working machine fills up. The Peterborough store, and all other Tesco stores, has a RF6000 mainframe machine; these machines are very large with a virtually infinite memory. The Cheshunt computers deal with and record the activity of the entire Tesco operation, the RF6000 deal with all `instore` transactions. Tesco Product Number and E.A.N. European Article Number are the barcode numbers which Tesco uses in its scanning operations

All of Tesco's products have barcodes on them. In order to pay for the item, the barcode must be scanned by a laser scanner at the checkout.

Paying for items at Tesco via the laser scanner and bar-coding system means that it improves checkout accuracy so there are less errors and less fraud because the checkout staffs aren't having to type in the codes for the product. It is also a faster and more efficient way of throughput. It saves 15% in time to scan the goods in a shopping trolley rather than a manual system. This system is linked to Tesco's main system. As each product is scanned, it is recorded and then Tesco can tell if they are getting low on a particular product and the computer will simply order more. Also because of this system, Tesco can tell what the customer wants and what they like to buy and what time of year they buy what product more. This benefits the customer because with the manual system, items can be typed in wrong and this means the customer could end up paying more than what is necessary and more promotions can be offered like buy one get one free which encourages customers to go to the shop more often if there are special offers on.

This technology maintains their customer loyalty.

Electronic Shelf Labelling

Tesco uses liquid crystal shelf labels containing price, description and ordering information of the goods. The label is operated from a computer that is using radio signals which means that if a price is changed on the computer database then the price on the shelf changes automatically at he same time. Because of this, human error is avoided. This ICT helps Tesco because it saves them time having to manually change the price of a product. They could create errors if they had to change it manually whereas by using a computer they can make sure it is accurate.

This keeps customer interest because all prices are correct, if Tesco staff had to change them manually instead of it being computerised, the wrong price could be written down and then customers could be paying too much for a certain product and choose to shop elsewhere that isn't as expensive.

Electronic Mail

Tesco has realised the benefits of using electronic mail. Conventional methods of communication have a lot of downsides such as:

- Post can get lost
- Telephones can be unanswered
- Fax machines can be engaged
- People not at their desks

The downside to using electronic mail is that you can get too much of it and end up ignoring it because you can't be bothered to read it. Also, the computer system could get a virus attached to an email and bring down the whole system.

The advantages to Tesco using electronic mail are:

- Recipient doesn't need to be there when the mail is sent
- It can be delivered and replied to in the same day
- It can be disposed of easily
- You can send an email to suppliers and change/speed up the order

This benefits Tesco because if they run out of a particular good it will be with them the next day because of electronic mail, if it was sent via the post, the mail wouldn't get there until the next day, this then benefits the customer because the shelves always have produce on so they don't have to go to another shop.

Tesco and the Internet

Tesco was the first supermarket to offer ALL of its goods on the internet for online shopping. If you register with the system then you can use it to buy your shopping without having to leave your home. You are able to select your method of payment and a suitable time for their goods to be delivered to their house. There is a charge for the delivery but it is a fixed one and doesn't alter and is automatically added to your bill. This keeps customer interest because if you live within a certain distance of your Tesco you can have your shopping delivered and the delivery fee isn't going to change which keeps their internet shop popular.

This benefit Tesco because it offers people a service that is very popular, internet shopping so people will continue to use Tesco's because of their fixed delivery price so Tesco is getting more and more money towards the company because they have expanded their business online.

How does the online shopping operate?

It's just like a shopping basket in a supermarket. You can choose items that you want and put them into your basket by clicking on the 'add to basket' button without having to buy them. It's just a way of holding onto things that you are interested in and you can delete any items that you don't want. When you have finished your shopping you click on 'checkout'. At this point you will need to register or log in, and then you need to select your payment details and enter your delivery details. You still earn Clubcard points even when ordering your shopping online. When you register you automatically setup a Tesco Clubcard.

Inputs, Processes and Outputs

The ICT system at Tesco uses a computer system that has various Input and Output devices that helps it run and that the computer system needs to make it so reliable and powerful. A variety of scanning devices, internet connections and direct links to suppliers, each Tesco store uses Windows, MSDOS Word Processing for local internal and external communications. Excel is for payroll.

Inputs

Every system has an input, process and output. You put information in (keyboard, mouse) then it is processed and then it comes out (monitor).

An input is something that helps or creates a process and an output is the result of that process. Tesco's computer system inputs may use:

Fahmi

- Keyboard
- Computer
- Mouse
- Scanner
- Barcode Readers (laser scanners)
- Magnetic Strip
- Touch Screens
- Sensors

Keyboards

Keyboards are used in every office for routine tasks like writing letters, using the internet, creating spreadsheets and sending emails.

Computer

The Tesco Company use a very powerful and effective system. Everything revolves around the computer system. Tesco stores are all linked to two huge central computers at Tesco Head Office at Cheshunt. These machines are liked so that as one is filled up so the other starts. While one is in operation the other is prepared to take over when the working machine fills up.

Mouse

These can be plugged into the computer or wire free and when the mouse is clicked or moved, this sends a message to the computer telling it that the mouse has moved.

Scanner

Used to scan images or letters into the computer than can then be forwarded in an email or used on documents that need to be printed out.

Barcode Readers

These appear on just about everything that we buy. The pattern of the think and thin bars represents the 13 digit number underneath the bar code. A barcode is the black and white stripe label that appears on most if not, all products. The order and thickness of the bars are the price code for the product. This stops any wrong prices being entered in because all the same products have the same barcode. You must have a system to process the bar code input. These can be single-user, multi-user or network systems.

Magnetic Strip

Cards with magnetic stripes are used as credit cards, debit cards, railway tickets and phone cards etc. Magnetic strips can be used to trace people's habits; this means that Tesco can use them to figure out what people want by monitoring what people are buying from their stores. This can be linked to finance because the Tesco loyalty cards have a magnetic strip for that exact purpose, people pay for their goods in Tesco mainly by using their credit or debit cards which all have a magnetic strip, and they are scanned using this strip so that people can pay for their goods.

Touch Screens

These are used on the shop floor. They are used in conjunction with the laser scanners; if something won't scan then they can type it in manually and they are normally used in the Tesco café for selecting the fresh goods that can't be scanned.

Sensors

These can be used to collect things like temperature, light, movement and pressure. These are used in Tesco in the automatic doors.

Process

A process is an operation performed on the data. In Tesco, someone would want to buy something (input) and then the sale would be the output and the process would be what happens in the middle. Like all the recording of what the customers want from the loyalty cards.

Storage Devices

A computer storage device can be put into two categories, primary and secondary storage. Primary holds data and instructions that are being worked on.

This is known as volatile storage because when the computer is switched off the contents of the RAM (random access memory) are lost.

Secondary storage such as hard disks, floppy disks, CD's, DVD and magnetic tape are known as non volatile storage.

Hard Disks

Hard disks have a capacity of between 10GB and 30GB. They consist of one or more disk platters permanently sealed inside casing.

<u>CD-Rom Drive</u>

Compact disk read-only memory (CD-ROM) can store up to 650mb of data. CD-ROMS use a laser beam to read the data from the rotating disk. The light reflected back is interpreted as data. They are very cheap and easily transportable.

<u>Writeable CD's</u>

These are available in two different formats: CD-R (CD Recordable) and CD-RW (C-Rewritable). The CD-R can only be written to once whereas CD-RW can be re-written over and over again. These are more expensive and have slower recording and playback times, but they are very useful as backup devices.

<u>Jaz Disks</u>

These are a bigger version of Zip disks. They hold 1GB of data and because they hold so much data they are ideal for multimedia applications. They are much faster than floppy disks but slower than hard disks.

<u>DAT (digital audio tape)</u>

This is used almost only for backups and for archiving old data that needs to be kept but will probably never be used. Large amounts of data can be stored very cheaply and compactly using them.

<u>Zip Disks</u>

In an organisation, they are most likely to use Jaz or Zip devices for backing up the system. Zip disks are more reliable than floppy disks.

Output Devices

Common output devices supplied with a PC include a screen (also called a visual Display Unit or VDU) and a printer.

<u>VDU</u>

An image on a screen is displayed as an array of coloured pixels, a pixel (picture element) is a tiny dot on the screen and the resolution is measured in pixels. The higher the resolution, the better and clearer the colour on the screen. The amount of pixels is limited to a certain amount on different VDU's. There is a limit to the quality.

<u>Flat screens</u>

The flat screens (LCD or Liquid Crystal Display) are used in Tesco on the tills. This can be linked to operations because an operation in Tesco is working at the tills and these LCD flat screens are used because they are a quick modern way of paying for goods, also, by using these, what is bought can be monitored and all information of sold goods can be sent to the main computer system. These are also used in the café, because they are touch screen, the staff that works at the café type in what the customers have bought. They are used because they take up less space on the desk, use up a lot less power and they don't flicker like a conventional monitor that refreshes the image 70 or 80 times a second.

Printers

A printer has to be chosen carefully in order to suit its job. Colour printing, noise, speed and running costs need to be taken into consideration. There are lots of different types of printers that businesses use. Dot Matrix printers produce its image by striking the paper through a ribbon and its print head consists of lots of very small pins between 9 and 24, the bigger the pins the better the quality because the closer the dots will be together. This is the cheapest method of printing.

Ink Jet printers are the most popular for home printing. The ink is stored in cartridges that can be expensive to buy so this is not the sort of printer that a company may use.

Laser Printers use a fine black toner (powdered ink) similar to what is used in photocopiers; this is a fast printer that can rapidly produce multiple copies but the ink can be expensive.

Speakers

In order to play music, spoken text or other sounds you need speakers.

Because of this technology, Tesco can back up their system by putting it onto a disk and then if it crashes then they have all the data stored onto disks or CD's. They can store old data that should be kept but never needed in lots of different ways. This all means that the computer system that they use will be free of anything not needed.

Software

The information from each store is sent to the Head Office where the data is analysed and stored. It is sent via secure Internet. The software needed for this is an accounts package like Sage accounts. Sage is a leading supplier of business management software and is package that organisations buy from a computer company and is used by most

big businesses and most likely Tesco. The software helps businesses run more smoothly and effectively and provides them with lasting benefits by automating their business processes. Tesco may use Word for producing memo's, letters and faxes, Excel for minor accounting in local stores, Publisher for creating vouchers, leaflets and posters, and Access for keeping what is being bought and what is most popular within the store.

Hardware

Floppy disk drives loose information so hard disks were introduced, but now memory sticks are used.

- Ports
- Cables
- Interfaces
- USB ports

Ports

Cables are inserted into the external connection points (ports) on a computer to connect a computer with another piece of hardware. Serial and parallel are the two types of ports. Parallel Ports are used to connect disc drivers and printers and allow data to be transmitted side by side. Serial Ports are used for Keyboards and the Internet or any communication medium and allow data to pass in single file. Tesco runs and revolves around its computer system. Without the ports to put the cables into, the system would be pointless.

Cables

These are used to connect all ICT hardware together. The ICT equipment would be useless if it wants all connected together. There is the exception of wireless hardware however but this is, at the moment, on a small scale. Fibre optic cable is becoming increasingly used instead of metal (normally copper wire). Fibre optic is cheaper than copper and more efficient. Fibre optic is being increasingly used because it is a more modern system so no doubt Tesco uses cables with fibre optics in to make the system more reliable and more efficient.

Interfaces

Computers, Scanners, Printers etc have to be connected together to be of any use. They have no use if they are alone. Like a computer, there is no point in having one if there isn't a keyboard or a mouse connected to it (input devices) or a monitor or a printer (output devices). The hardware and software needed to connect devices

together are the interfaces. To connect a computer to a printer it needs to have a cable connecting them both as well as a program in the computer allowing the computer to `talk` with the printer and instruct it to print. The cable is hardware and the program and often called a Printer Driver is software.

<u>USB Ports</u>

Modern computers use Universal Serial Bus Ports (USB). USB ports are smaller than normal ports and are more efficient.

Finance, Produce, Operation and Sale

Evaluation

Tesco runs very effectively, they keep their customers shopping at their store by offering those vouchers, discounts and special offers if they promise to shop there by getting a loyalty card. This keeps the customers satisfied because they are getting their shopping at a lower price. Tesco has to compete with other stores for their customers and they succeed in winning them because of their special offers. Customers that shop at Tesco are rewarded for shopping there so obviously they are going to continue to shop there.

 Tesco's technology is very up-to date and modern and because of this they have developed a successful store. They have a very fast system of paying for goods and this system can help them make even more money because is records what people are buying from their store which then shows them what customers want. So not only is it benefiting the customer it is also benefiting Tesco.

 The store runs very effectively because of its high usage of ICT, it remains a popular store because of the laser scanners that cut buying time in half and allows for no price mistake when processing the shopping unlike if they were to do it manually so the scanners save them time, the loyalty cards give them rewards for shopping there and benefit Tesco by telling them what people want in different stored across the country, the shops are always stocked thanks to automatic re-ordering and the scanners so people don't have to shop elsewhere to buy everything that they want because everything they need is in one place especially at the Tesco in Hampton because there are other shops in the same area so people don't have to go from one side of Peterborough to he other to complete their shopping because everything is under one roof.

So the customers are satisfied because they are saving time by having everything under one roof and they are saving money because they don't

have to travel to different places to complete their shopping so they aren't spending as much on petrol and they are saving even more money if they have a loyalty card because they are getting money off vouchers to spend in Tesco. They also have the self-service scanners now where you pay for the shopping yourself if you are in a big hurry and there are lots of queues.

These cut the shopping time down for customers even more because they don't have to stand in massive queues for a few items. The purpose of Tesco as an organisation is 'to create value for the customer to earn lifetime loyalty' and because of their modern and the amount of modern technology they can achieve this. They are getting 'lifetime loyalty' by offering customers a loyalty card to keep them interested in the shop.

They are creating value for customers by putting special offers on foods and being cheaper than some shops and by giving people money off vouchers that have a loyalty card so they will always maintain customer interest and satisfaction. The products that are sold by Tesco are good quality. A majority of their products have a bar code on them, this benefits Tesco by telling them how many are being sold and when numbers are getting too low and more needs to be ordered. This benefits customers because it tells them when to eat them by and how to cook them and a serving suggestion. They have a value statement on how to maintain their customers and this is value, quality and service. They have value because their food sold is of a high standard and is very good quality for money and their service is very good also because if you have forgotten something at the till then a Tesco worker will go and get it for you, if you cant find what you want, someone will take you to where it is and also, the home delivery has a good service because it is a fixed charge within a big area and you can choose when to have it delivered.

Overall Tesco is a highly successful company thanks to its technology that keeps the business running and moving. Most of the business is run using computers and technology. Ordering new products, finding what the customer wants, scanning goods, paying for goods, printing all the leaflets, vouchers and posters that promote Tesco all is designed and come from their computer system.

Tesco uses I.C.T. for all of its administration. The company is 100% dependant upon computers. At the Peterborough store there are very few administrative staff. Only 23 people are employed in the administration side of Tesco. If there was no computer system in the store at least another 300 people would need to be employed in administration to cover all the jobs done by the computer.

ICT helps fulfil Tesco's purpose **'To create value for the customer to earn lifetime loyalty'** really well. This is because they use ICT to their

Fahmi

advantage by creating uses like finding out what customers want and then making sure they get what they want to keep them shopping at Tesco stores.

It helps it fulfil its purpose by giving customers what they want and keeping them 'loyal' to the store. Tesco keeps its customer loyalty because they offer their customers rewards when they shop at there stores